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Paper No. 18

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JAMES CALVIN PEELE

Appeal No. 2003-0469
Application No. 09/317,480

ON BRIEF

Before JERRY SMITH, BARRETT and NAPPI, **Administrative Patent Judges**.

NAPPI, **Administrative Patent Judge**.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 of the final rejection of claims 1-9

Invention

The invention relates to a method of allocating channels in a cellular communication system. Cellular communication systems provide coverage to an area by subdividing the area into a series of smaller sub areas called cells. Each cell has a base station which communicates with users. The base stations are



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set up in such a manner that the cell is broken up into sectors of coverage. The cells/base stations and each of their sectors are assigned a group of radio frequencies through which they communicate with users (i.e., cell phones). The same frequency groups may be used by many cells in the communications system, however frequencies are assigned to base stations such that adjacent cells do not use the same frequency group. The invention allows for dynamically allocating frequencies to the sectors in the cell based upon the utilization of the cell.

Claim 1 is representative of the invention.

1. A method for allocating channels in a cell of a cellular communication system having a plurality of cells comprising:
 - a. dividing the cell into a plurality of sectors;
 - b. subdividing channels allocated to the cell into frequency subgroups;
 - c. assigning the frequency subgroups to respective sectors in the cell;
 - d. allocating channels within each sector to users in the corresponding sector;
 - e. when the number of channels allocated in a first sector of the cell reaches a predetermined threshold, reassigning an unused channel from a second sector in the cell to the first sector.

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References

The references relied upon by the examiner are as follows:

Benveniste	5,809,423	Sep. 15, 1998
Przelomiec	5,960,351	Sep. 28, 1999 (filed Feb. 26, 1997)
Yu et al. (Yu)	6,047,186	Apr. 04, 2000 (filed Oct. 06, 1997)
Borst et al. (Borst)	6,119,011	Sep. 12, 2000 (filed Mar. 05, 1998)

Rejection at Issue

Claims 1 and 2 are rejected under 35 U.S.C. § 103 as being unpatentable over Yu in view of Benveniste. Claims 3, 6 and 7 are rejected under 35 U.S.C. § 103 as being unpatentable over Yu in view of Benveniste and Borst. Claims 4, 5, 8 and 9 are rejected under 35 U.S.C. § 103 as being unpatentable over Yu in view of Benveniste, Borst and Przelomiec. Throughout the opinion we make reference to the brief and the answer for the respective details thereof.

Opinion

We have carefully considered the subject matter on appeal, the rejections advanced by the examiner and the evidence of obviousness relied upon by the examiner as support for the rejections. We have, likewise, reviewed and taken into consideration, in reaching our decision, the appellant's arguments set forth in the brief along with the examiner's rationale in support of the rejections and arguments in rebuttal set forth in the examiner's answer.

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With full consideration being given to the subject matter on appeal, the examiner's rejections and the arguments of appellant and examiner, for the reasons stated *infra* we affirm the examiner's rejections of claims 1 through 9 under 35 U.S.C. § 103.

At the outset we note that appellant states on page 5 of the brief that "[a]ll of the claims stand or fall together". 37 C.F.R. § 1.192(c) (7) (July 1, 2001) as amended at 62 Fed. Reg. 513196 (October 10, 1997), which was controlling at the time of appellant filing the brief, states:

For each ground of rejection which appellant contests and which applies to a group of two or more claims, the Board shall select a single claim from the group and shall decide the appeal as to the ground of rejection on the basis if that claim alone unless a statement is included that the claims of the group do not stand or fall together and in the argument under paragraph (c) (8) of this section appellant explains which the claims of the group are believed to be separately patentable. Merely pointing out the differences in what the claims cover is not an argument as to why the claims are separately patentable.

We will, thereby, consider the appellant's claims in three groups, one for each rejection. Group 1 consists of claims 1 and 2 and we will treat claim 1 as a representative claim of that group. Group 2 consists of claims 3, 6 and 7 and we will treat claim 6 as a representative claim of that group. Group 3 consists of claims 4, 5, 8 and 9 and we will treat claim 4 as a representative claim of that group. **See also In re McDaniel** 293 F.3d 1379, 1383, 63 USPQ2d 1462, 1465 (Fed. Cir. 2002) ("if the brief fails to meet either requirement [of 37 CFR 1.192(c)(7)] the Board is free to select a single claim from each group of claims

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subject to a common ground of rejection as representative of all claims in that group and to decide the appeal of that rejection based solely on the selected representative claim.") **See also *In re Watts*** 354 F.3d 1362, 69 USPQ2d 1453, (Fed. Cir. 2004).

Appellant makes two principal arguments, which are directed to all of the rejections based upon 35 U.S.C. § 103. First, on page 5 of the brief appellant argues “[t]he examiner’s reliance on Yu is improper, since Yu, when considered as a whole, teaches away from the present invention. The Examiner has not considered Yu as a whole, but rather has selectively extracted elements from Yu to reject Applicant’s claims.” On pages 5 through 8 of the brief appellant provides the rationale to support the first argument. On page 9 of the brief, appellant presents the second argument that “[t]he examiner’s rejection based upon Benveniste relies on argument by insufficiently substantiated analogy.” The rationale supporting this argument is provided on pages 9 through 11 of the brief.

Before we consider the examiner’s rejection we must first determine the scope of the claims. Claims will be given their broadest reasonable interpretation consistent with the specification, limitations appearing in the specification will not be read into the claims. ***In re Etter*** 756 F.2d 852, 858, 225 USPQ 1, 5 (Fed. Cir. 1985). In analyzing the scope of the claim, office personnel must rely on the appellant’s disclosure to properly determine the

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meaning of the terms used in the claims. *Markman v. Westview Instruments, Inc.*, 52 F3d 967, 980, 34 USPQ2d 1321, 1330 (Fed. Cir. 1995). “[I]nterpreting what is *meant* by a word in a claim ‘is not to be confused with adding an extraneous limitation appearing in the specification, which is improper.’” (emphasis original) *In re Cruciferous Sprout Litigation*, 301 F.3d 1343, 1348, 64 USPQ2d 1202, 1205, (Fed. Cir. 2002) (citing *Intervet America Inc v. Kee-Vet Laboratories Inc.* 12 USPQ2d 1474, 1476 (Fed. Cir. 1989)). “[T]he terms used in the claims bear a “heavy presumption” that they mean what they say and have the ordinary meaning that would be attributed to those words by persons skilled in the relevant art.” *Texas Digital Sys, Inc. v. Telegenix, Inc.*, 308 F.3d 1193, 1202, 64 USPQ2d 1812, 1817 (Fed. Cir. 2002). “Moreover, the intrinsic record also must be examined in every case to determine whether the presumption of ordinary and customary meaning is rebutted.” (citation omitted). “Indeed, the intrinsic record may show that the specification uses the words in a manner clearly inconsistent with the ordinary meaning reflected, for example, in a dictionary definition. In such a case, the inconsistent dictionary definition must be rejected.” *Texas Digital Systems, Inc. v. Telegenix, Inc.*, 308 F.3d at 1204, 64 USPQ2d at 1819 (Fed. Cir. 2002). (“[A] common meaning, such as one expressed in a relevant dictionary, that flies in the face of the patent disclosure is undeserving of fealty.”); *Id.* (citing *Liebscher v. Boothroyd*, 258 F.2d 948, 951,

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119 USPQ 133, 135 (C.C.P.A. 1958) ("Indiscriminate reliance on definitions found in dictionaries can often produce absurd results.")). "In short, the presumption in favor of a dictionary definition will be overcome where the patentee, acting as his or her own lexicographer, has clearly set forth an explicit definition of the term different from its ordinary meaning." *Id.* "Further, the presumption also will be rebutted if the inventor has disavowed or disclaimed scope of coverage, by using words or expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope." *Id.*

Claim 1 contains the limitations "dividing the cell into a plurality of sectors", "allocating channels within each sector to users in the corresponding sector" and "when the number of channels in a first sector of the cell reaches a predetermined threshold, reassigning an unused channel from a second sector in the cell to the first sector." Claim 6 similarly includes the limitations of "dividing the cell into a plurality of sectors", "allocating channels within each sector to users in the corresponding sector" and "when the number of channels in a first sector of the cell reaches a predetermined threshold . . . reassigning the unused channel from the second sector in the cell to the first sector in the cell." Thus, the scope of claims 1 and 6 includes that a cell has several sectors, each of which is assigned several channels and when the number of channels being allocated to users in one of the sectors reaches a threshold an un-used channel

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from another sector in the same cell is taken and assigned to the sector that reached the threshold.

Appellant asserts on page 6 of the brief that Yu teaches allocation of channel groups to sectors based upon real-world performance characteristics using a complex algorithm. Appellant argues, “Not only does Yu disclose no dynamic allocation of channels among sectors, Yu inherently teaches away from the adaptive allocation of channels. Yu’s invention is the computationally intensive crafting of a fixed channel allocation pattern that is tailored to the real-world performance metrics of each specific region” (emphasis original).

On page 10 of the answer the examiner agrees, “Yu does not teach, suggest or contemplate dynamic allocation of channels among sectors, but instead teaches fixed allocation of channels among sectors.” However, the examiner asserts that Yu does not teach away from dynamic allocation of channels. On page 11 of the answer, the examiner argues that Benveniste is evidence that Yu does not teach away from dynamic allocation of channels. The examiner reasons, on page 12 of the answer, that

Benveniste suggests that Yu can be modified for Adaptive channel assignment. Yu does not teach Adaptive channel assignment, but clearly teaches of non-regular fixed channel allocation. Benveniste discloses that non-regular fixed channel allocation, when performed periodically, is adaptive channel assignment. The appellant has made no showing of why Yu’s non-regular fixed channel allocation could not be performed periodically; hence the examiner maintains that Yu’s system is able to be modified for adaptive allocation of channels per Benveniste. As such it is disagreed that Yu teaches away. (citations omitted)

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Our reviewing court has said “[A] reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be lead in a direction divergent from the path that was taken by the applicant. The degree of teaching away will of course depend upon the particular facts; in general, a reference will teach away if it suggests that the line of development flowing from the reference’s disclosure is unlikely to be productive of the result sought by the applicant.” *In re Gurley*, 27 F.3d 551, 553, 31 USPQ2d 1130, 1131 (Fed. Cir. 1994) (*citing United States V. Adams*, 383 U.S. 39, 52, 148 USPQ 478, 484 (1966)). However, a reference that “teaches away” does not *per se* preclude a *prima facie* case of obviousness, but rather the “teaching away” of the reference is a factor to be considered in determining unobviousness. *Id.* 27 F.3d at 552, 31 USPQ 2d at 1132.

Initially, we note that claim 1 does not include a limitation for “dynamic allocation of channels among sectors” as appellant’s arguments on page 6 and the examiner’s response imply. As stated *supra*, we find that the scope of claim 1 includes a cell that has several sectors, each of which is assigned channels and when the number of channels being allocated to users in one of the sectors reaches a threshold an un-used channel from another sector in the same cell is taken and assigned to the sector that reached the threshold (we refer to this

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limitation hereinafter as "transferring channels between sectors of a cell based upon channel use").

We do not find that Yu teaches away from the concept of transferring channels between sectors of a cell based upon channel use. Yu is concerned with the assignment of communication channel frequencies to sectors in cells.

The problem in the prior art that Yu sets out to solve is that terrain, buildings and other "real world" constraints make it difficult to assign frequencies to cells (see Yu Column 3, lines 64 to Column 4 line 41). Yu's invention is to create a solution to reduce the "re-engineering" effort required to implement frequency allocated in the "true physical systems" (see Yu Column 4, lines 55-62). Thus, we find that Yu teaches that the solution may require further adjustment. Yu recognizes that the number of frequencies assigned to a sector are determined by traffic load in the sector and teaches a method to assign frequencies to the sectors when the traffic load in a sector does not require all the frequencies assigned (see Yu. Column 17, lines 3-9. We consider that one of ordinary skill in the art would realize that the opposite could also occur and would recognize a scenario where the traffic in the sector swells such that there are insufficient frequencies assigned to a sector to accommodate the traffic. As such we find that one of ordinary skill in the art would be motivated to consider further adjustments to the frequency assignment. We find no teaching in Yu that would discourage one from modifying the device to permit transferring channels

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between sectors of a cell based upon channel use. Further, as addressed *infra*, we find that as the examiner argues, any divergence between the fixed allocation teaching of Yu and the transferring of assignment as claimed is mitigated by the teachings of Benveniste. Accordingly, we do not find that Yu teaches away from transferring channels between sectors of a cell based upon channel use, rather we find that Yu does not contemplate a scenario where transferring channels between sectors of a cell based upon channel use is necessary and leaves the door open for further adjustment of the frequency assignment.

Appellant argues, on pages 6 through 8 of the brief, that the examiner has improperly relied upon the Yu, that the examiner picked and chose among the isolated disclosures of Yu and that the examiner should have considered the teachings of Yu as a whole. Appellant argues, on page 8 of the brief, that

When considered as a whole, Yu teaches constructing call sector boundaries that accurately reflect real-world performance characteristics, followed by a precise allocation of specific channel groups to each sector according to a complex algorithm to optimize performance in each region. Yu expresses no concern for co-channel interference, for the relative loading among sectors or for spectral efficiency. The complexity and computational intensity of Yu's sector channel allocation algorithm dispel any notation that Yu envisioned, contemplated or could possibly implement the dynamic allocation of channels among sectors on an as-needed basis. In short, Yu teaches away from Applicant's invention.

The examiner responds to these arguments, on page 10 of the answer, by asserting that Yu does not "teach away" and stating:

Yu states that co-channel (channel to channel) interference is a limiting factor in the number of channels available in a system and is the chief reason for implementing the cellular and frequency reuse concepts. Thus

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by using cellular and frequency reuse concepts, Yu inherently is concerned with co-channel (channel to channel) interference. Further, even if Yu does not express concern for co-channel interference, for the relative loading among sectors, or for spectral efficiency, the appellant does not indicate why such lack of express concern would render Yu as teaching away from adaptive allocation of channels or the applicant's invention.

It is unclear from the record if the examiner has or has not considered the teaching of Yu as a whole. The statements by the examiner in the final office action and the advisory action referred to by the appellant do not prove that the examiner did not consider Yu as a whole. However, even if the examiner did not consider Yu as a whole, we consider it to be harmless error in this instance. We have considered the reference as a whole and as stated *supra*, we do not find that Yu teaches away from transferring channels between sectors of a cell based upon channel use.

We find the appellant's arguments concerning the co-channel interference un-convincing for the reasons stated by the examiner on page 10 of the answer (and reproduced above).

Appellant's argument, on page 8 of the brief, that '[t]he complexity and computational intensity of Yu's sector channel allocation algorithm dispel any notation that Yu envisioned contemplated or could possibly implement the dynamic allocation of channels among sectors on an as-needed basis. In short, Yu teaches away from Applicant's invention", is not convincing, as this is not the test to establish that a reference "teaches away". The test to determine if a

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reference "teaches away" is to determine if one "would be discouraged from following the path set out in the reference, or would be lead in a direction divergent from the path that was taken by the applicant" *In re Gurley*, 27 F.3d at 553, 31 USPQ2d at 1131 (Fed. Cir. 1994). As stated, *supra*, we find that though Yu does not contemplate a scenario where transferring channels between sectors of a cell based upon channel use is necessary, Yu does not discourage this practice and leaves the door open for further adjustment of the frequency assignment.

On page 9 of the brief, appellant argues "[t]he paths taken by Yu and the Applicant - carefully crafted fixed channel allocations and dynamic as-needed channel allocations - could not be more divergent" and Yu when considered as a whole teaches away from appellant's invention.

The examiner argues, on page 12 of the answer, that

Benveniste suggests that Yu can be modified for Adaptive channel assignment. Yu does not teach Adaptive channel assignment, but clearly teaches of non-regular fixed channel allocation. Benveniste discloses that non-regular fixed channel allocation, when performed periodically, is adaptive channel assignment.

A reference that neither teaches a limitation nor warns against using the limitation does not require a finding that the reference "teaches away" rather the teaching of the reference must be considered alongside the teachings of the secondary reference. *ParaOrdnance Manufacturing Inc. V. SGS Importers Int. Inc.*, 73 F.3d 1085, 1090, 37 USPQ2d 1237, 1241 (Fed. Cir. 1995). As

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stated *supra*, we do not find that Yu teaches or discourages the transfer of channels between sectors of a cell based upon channel use. We agree with the rationale provided by the examiner, Benveniste provides suggestion to modify Yu, however both the examiner and appellant address the combination as applied to adaptive allocation of channels. As discussed *supra* claim 1 does not contain a limitation directed to adaptive allocation of channels, but rather contains the limitation that we refer to as “transferring channels between sectors of a cell based upon channel use”. Accordingly we address the combination of the references as it applies to the limitations of claim 1.

We find that Benveniste contains suggestion to be modified with a channel allocation system such as taught by Yu. We concur with the examiner’s assessment that the system of Yu is the type Benveniste refers to as non-regular channel allocation. Benveniste, in column 1, lines 52-60, identifies two types of fixed channel allocations, regular and non-regular, where non-regular channel allocation is applied when traffic distribution is not uniform. As discussed *supra*, Yu teaches assignment of channels based in part upon traffic distribution. Benveniste also teaches Adaptive-Dynamic Channel Assignment which is a flexible channel assignment that can adapt to varying traffic loads. Adaptive-Dynamic Channel Assignment is performed using non-regular channel allocation, Column 8, lines 11-20. In Adaptive-Dynamic Channel Assignment “Cells will attempt to use the allocated channels first. If unavailable other channels will be

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accessed", Column 8, lines 3-5. Thus in Adaptive-Dynamic Channel Assignment, the non-regular channel allocation is used until there are no longer any channels available, then additional channels are allocated. Benveniste teaches that Adaptive-Dynamic Channel Assignment is accomplished using three logic functions, channel acquisition (channel borrowing), channel release and channel (re)allocation, (the non-regular channel allocation) Column 9, lines 24-30. Benveniste teaches a preferred method to perform (re)allocation of channels and also states "the ADCA [Adaptive-Dynamic Channel Assignment] Algorithm described herein can be used with other channel allocation methodologies." Column 11, lines 46-47. We feel that this passage would provide suggestion to one of ordinary skill in the art to look to other methods of non-regular channel allocations such as Yu's channel allocation which addresses "real world" limitations on channel assignment.

Appellant argues, on pages 9 and 10 of the brief, that Benveniste teaches allocation of channels among cells within a wireless system and not among sectors in a single cell.

We are not convinced by this argument as we find that Benveniste implicitly teaches that channels are transferred between sectors in a cell. As the examiner points out on page 12 of the answer, Benveniste, recognizes that some cells are sectorized into smaller angular areas, see column 3, lines 12-19.

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Benveniste teaches that in the channel (re)-allocation function of Adaptive-Dynamic Channel Assignment, "channels are selected so that the number of channels allocated to each cell or sector is proportional to the number of channels needed", Column 11, lines 35-37. Thus, we find that Benveniste teaches that when the cell is divided into sectors, channels are allocated to sectors in the cell. Benveniste describes the operation of the channel acquisition logic (channel borrowing), shown in figure 4, as follows:

The process in which unused channels are borrowed by a cell needing added capacity is illustrated by the flowchart of figure 4.... The decision block 909 determines if there is an available channel from those allocated to the cell to assign to the call request. If there is one, the flow proceeds to block 911 whose instructions assign the call to the free channel and the assignment process ends in terminal 919
If all channels allocated to the cell are busy within the cell or borrowed by other cells, the flow processes to block 913 which determines if there is a free channel, not allocated to the cell, that would meet al interference and system requirements if assigned to the call. (emphasis added)

Thus, channel transfer (channel borrowing) only occurs if all channels allocated to the cell are busy. We find that since sectors are segments of a cell, channels allocated to the sector are necessarily allocated to the cell. Accordingly, we find that one of ordinary skill in the art would recognize that implicit in Benveniste's teaching, that channels from other cells are only borrowed when there is no available channel in the cell, is that channels allocated to sectors within the cell must be transferred between sectors before transfer channels from another cell are transferred to the cell.

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On page 10 of the brief, appellant argues that the examiner provides superficial arguments by analogizing the relationship between a sectors of a cell and the parent cell to the relationship between a cell of a network and the network. On pages 11 and 12 of the brief, the appellant argues that the examiner does not provide a showing of equivalence between these relationships. As stated *supra* we find that one of ordinary skill in the art would recognize that Benveniste implicitly teaches transfer of channels between sectors. As our holding does not rely on an analogy concerning the relationship between a sector of a cell and the parent cell to the relationship between a cell of a network and the network, we consider appellant's arguments on pages 11 and 12 of the brief to be moot. Nonetheless, we find that the examiner's analogy is supported by the disclosure of Benveniste which teaches that during channel (re)-allocation that cells and sectors are treated similarly, see Column 11, lines 35 to 37, which states "channels are selected so that the number of channels allocated to each cell or sector is proportional . . ."

For the aforementioned reasons we sustain the examiner's rejection of claims 1 and 2 under 35 USC § 103 as being unpatentable over Yu and Benveniste.

Next we consider the rejection of claims 3, 6 and 7 under 35 USC § 103 as being unpatentable over Yu, Benveniste and Borst. As stated *supra* we,

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consider claim 6 as being representative of the group of claims included in this rejection. Appellant has not provided arguments directed specifically to this group of claims, rather appellant's arguments are directed to the combination of Yu and Benveniste, which form a part of the rejection of these claims.

As stated *supra*, we find that claim 6 includes limitations of similar scope to claim 1. Since appellant has provided no additional arguments addressing this rejection. We sustain the rejection of claims 3, 6 and 7 under 35 USC § 103 as being unpatentable over Yu, Benveniste and Borst for the reasons stated *supra* concerning the rejection of claims 1 and 2 under 35 USC § 103 as being unpatentable over Yu and Benveniste.

Finally, we consider the rejection of claims 4, 5, 8 and 9 under 35 USC §103 as being unpatentable over Yu, Benveniste, Borst and Przelomiec. As stated *supra* we, consider claim 4 as being representative of the group of claims included in this rejection. Appellant has not provided arguments directed specifically to this group of claims, rather appellant's arguments are directed to the combination of Yu and Benveniste which form a part of the rejection of these claims.

As claim 4 is ultimately dependent upon claim 1, it necessarily includes the same limitations considered *supra* with respect to claim 1. As appellant has provided no additional arguments concerning this rejection, we will sustain the

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rejection of claims 4, 5, 8 and 9 under 35 USC § 103 as being unpatentable over Yu, Benveniste, Borst and Przelomiec for the reasons stated *supra* concerning the rejection of claims 1 and 2 under 35 USC § 103 as being unpatentable over Yu and Benveniste.

Only those arguments actually made by appellant have been considered in this decision. Arguments which appellant could have made but chose not to make in the brief or by filing a reply brief have not been considered and are deemed waived by appellant [see 37 CFR § 1.192(a)] Support for this rule has been demonstrated by our reviewing court in *In re Berger* 279 F3d 975, 984, 61 USPQ2d 1523, 1528-1529 (Fed. Cir. 2002) wherein the Federal Circuit Court stated that because the appellant did not contest the merits of the rejections in his brief to the Federal Circuit Court, the issue is waived. *Also see In re Watts* 354 F.3d at 1368, 69 USPQ2d at, 1458.

In view of the forgoing, we have sustained the examiner's rejection of claims 1 through 9 under 35 USC § 103.

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

Jerry Smith

JERRY SMITH
Administrative Patent Judge

Lee E. Barrett
LEE E. BARRETT
Administrative Patent Judge

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ROBERT E. NAPPI
Administrative Patent Judge

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DAVID E BENNETT
RHODES COATS & BENNETT LLP
PO BOX 5
RALEIGH, NC 27602